

DEVICE FOR PRODUCTION OF AN UPPER  
ANCHORAGE FOR STEPS

5 The invention relates to the technical field of swimming pools, and in particular to sunken swimming pools.

10 More particularly, the invention concerns pools of swimming pools which are made of modulable panels which have connection fixtures for structuring the pool of the swimming pool according to various geometric forms.

15 In general, for example in an added-on manner, the upper part of the panels has an element with a squared transverse cross section which acts as a spout for casting concrete, often in combination with armouring. Also, these elements which act as a spout can be in communication with vertical ducts contained in the outer surface of the panels which constitute the pool  
20 of the swimming pool. Consequently, after the different panels have been assembled in position, the casting the concrete in the elements which act as a spout, in combination with the armouring, will constitute the upper anchorage in order to ensure that the pool  
25 assembly has the necessary strength.

Very often, the panels which constitute the pool of the swimming pool are fitted in combination with access steps. In general, these steps constitute an assembly  
30 in a single piece which can be obtained by means of different methods, i.e. projection of polyester with a gel coat, thermoforming, rotational moulding of plastics, injection, compression injection, etc. These steps can for example have a semi-rounded form which  
35 constitutes steps known by the name of "roman steps". The vertical edges of the steps which are situated on both sides of the opening from which the steps and

raisers are formed have fixtures for connection with the panels of the pool of the swimming pool.

Putting into place and retention of these steps are  
5 problematic to carry out.

For example, generally by means of hollow building blocks, the operator can produce a rounded wall to the rear of the steps. This wall is designed to support an  
10 upper anchorage which can optionally be built at the same time as the anchorage of the pool assembly of the swimming pool.

According to another embodiment, initially, the  
15 assembly of the swimming pool is backfilled, i.e. around the panels which constitute the pool and the steps. In a second stage, which in general can last 1 day or 2, after having carried out the backfilling operation, the operator excavates a trench around the  
20 steps, in order to produce the upper anchorage of the latter.

Consequently, this need either to produce a support wall, or, in a second stage, to produce a trench,  
25 increases significantly the time required to produce the pool assembly of the swimming pool, and gives rise to interruption at the level of the upper anchorage of the said pool.

30 The object of the invention is to eliminate these disadvantages simply, safely, efficiently and rationally.

The problem which the invention proposes to solve  
35 consists of ensuring continuity of the upper anchorage, including when the pool is equipped with added-on steps, and of eliminating the use of blocks in order to ensure the retention of the upper anchorage of the steps.

In order to solve a problem of this type, a device has been designed and developed for production of an upper anchorage for prefabricated steps for the pool of a swimming pool, comprising at least one element, the cross section of which is formed such as to act as a spout for casting concrete, the said element(s) co-operating firstly with support means which can be connected to the steps, and secondly with posts for support on the ground, the element(s) being designed to surround the upper part of the outer surface of the steps.

In order to solve the problem posed of ensuring the retention of the steps, in particular whilst preventing the latter from being subjected to forces, the element(s) is (are) in communication with the posts which are hollow for casting the concrete. Advantageously, the element(s) has (have) positioning fixtures, for centring and abutment of the posts.

In order to solve the problem posed of ensuring the connection of the anchorage elements relative to the steps, the support means consist of flanges or load-bearing fixtures which have a cross section formed such that they can be clipped onto the upper level of the steps, and ensure the support of the element(s). Advantageously, the element(s) has (have) a squared transverse cross section, the horizontal wing of which can be positioned such that it is supported against the outer surface of the steps. The flanges or load-bearing fixtures delimit a transverse cross section substantially in the form of a "U" or an "L".

According to a preferred embodiment, this device has a plurality of elements, the transverse ends of which have imbrication fixtures with an adjacent element in order to ensure continuity.

According to this design, the horizontal wing of each element has a profiled support edge which corresponds to the profile of the outer surface of the steps, the vertical wing consisting of two shoulders which are  
5 disposed angularly.

According to other characteristics, the fixtures of the elements for positioning, centring and abutment of the posts are disposed in the horizontal wing at the level  
10 of the intersection of the two shoulders which are disposed angularly.

After being connected to the steps, the element(s) is (are) in continuity with an upper anchorage provided by  
15 panels which can constitute the pool of the swimming pool.

The invention is described in greater detail hereinafter by means of the figures of the attached  
20 drawings, in which:

- Figure 1 is a schematic plan view showing an embodiment of a pool of a swimming pool with steps of the roman type, in which the continuity of the anchorage between the steps and the assembly of the  
25 panels which constitute the pool of the swimming pool can be seen;

- Figure 2 is a perspective view of the steps equipped with the elements of the device for production of the upper anchorage;

30 - Figure 3 is a view in transverse cross section considered according to the line 3-3 in Figure 2; and

- Figure 4 is a view in transverse cross section considered according to the line 4-4 in Figure 2.

35 In a manner which is perfectly known, the general form of the pool of the swimming pool can be obtained from juxtaposed assembly of a plurality of panels. For example, according to an indicative example which is in no way limiting, these panels are of the type described

in patents FR 89.00722 or FR 01.12067, the holder of which is the present applicant.

5 The different panels 1 are fitted in combination with steps 2 which constitute an assembly in a single piece produced by any appropriate known means, in particular by projection of polyester with a gel coat, thermoforming, rotational moulding of plastics, injection, compression injection, etc., of a plastics  
10 material. As previously stated, the outer surface of the different panels 1 can receive, directly or in an added-on manner, at its upper end, elements 3 in the form of a spout which can receive concrete to constitute an upper anchorage, in particular with  
15 armouring.

According to one characteristic on which the invention is based, at least one element 4 is connected to the upper part of the steps 2 at the level of its outer  
20 surface, whilst its cross section is formed so as to act as a spout for casting concrete, which can consequently surround the upper part of the outer surface of the steps. This or these element(s) 4 co-operate with posts for support on the ground 5.

25 Advantageously, the upper anchorage of the steps 2 is made of a plurality of elements 4 which are disposed in alignment and constitute elements which can be modulated. In particular, the inner horizontal edge of  
30 each element 4 is advantageously shaped so that it can be placed against the corresponding part and profile of the outer surface of the steps 2.

35 The transverse ends 4a and 4b have imbrication fixtures with an adjacent element in order to ensure continuity. The elements 4 have a squared transverse cross section, the horizontal wing 4c of which can be positioned supported against the outer surface of the steps, as previously stated.

In the embodiment illustrated in the figures of the drawings, the horizontal wing 4c of each element 4 has a profiled support edge which corresponds to the profile of the outer surface of the steps. The vertical wing 4d consists of two shoulders 4d1 and 4d2 which are disposed angularly.

The elements 4 are connected to the steps 2 by means of flanges or load-bearing fixtures 6, the cross section of which is formed such that they can be clipped onto the upper level of the steps 2 and ensure the support of the said elements 4. As a whole, each load-bearing fixture 6 has a transverse cross section in the form of a "U" or an "L", corresponding to the squared profile of the anchorage elements 4.

According to another important characteristic of the invention, the anchorage elements 4 are in communication with the support posts 5. The posts 5 are hollow for casting the concrete.

Advantageously, the elements 4 have fixtures for positioning, centring and abutment of the posts 5. For example, these fixtures are formed in the thickness of the horizontal wing 4c at the level of the intersection of the two shoulders 4d1 and 4d2 which are disposed angularly. These abutment and positioning fixtures consist for example of a flanged circular bearing surface 4e formed in the thickness of the horizontal wing 4c.

Taking into account these arrangements, after the different anchorage elements 4 have been assembled, at the level of the upper shoulder of the steps 2, the said elements 4 are in continuity with the anchorage elements 3 of the panels 1 which constitute the pool of the swimming pool, thus ensuring perfect continuity of the upper anchorage.

Advantageously, the different elements 4 are made of plastics material according to any method which is perfectly known by persons skilled in the art. It can  
5 also be noted that each element 4 may be manufactured so as to have different strengthening ribs.

It can also be noted that the posts 5 are supported on a concrete body and absorb all the forces after the  
10 concrete has been cast into the elements 4 which constitute the upper anchorage of the steps.

The advantages are apparent from the description.